



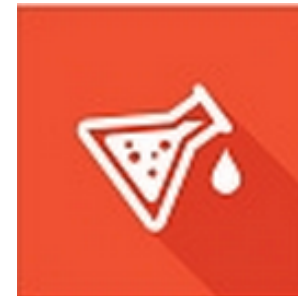
Designing Product Speeds for the Circular Economy



Keynote Lecture, ZWS
Prof R Earley & Dr K Goldsworthy
University of the Arts London
16th March 2016



Introduction





Introduction

Part 1: Fast & Slow Fashion Textile Speeds

- Circular Design Thinking
- Defining Fast & Slow
- The Speedcycle: A Proportionate Approach

Part 2: DESIGN for Fast & Slow Fashion Textiles

- New Fast (Design for 'Forward Fashion') Ultra Fast Forward
- New Slow (Design for 'Forever Fashion') Super Long Lasting

Conclusion



Introduction





Introduction





Introduction

The future of the textile and fashion industry relies on designers creating new, compelling visions for the way in which products are created, used and disposed of. Designers need to think radically about the materials that they are using and the form and purpose they are giving them.

CURATED BY

Rebecca Earley & Kate Goldsworthy



SEAMSDRESS

Dr. Kate Goldsworthy and David Telfer



A.S.A.P. (PAPER CLOTH)

Prof. Kay Politowicz and Dr. Kate Goldsworthy in collaboration with Dr. Hjalmar Granberg, Sandy MacLennan and David Telfer



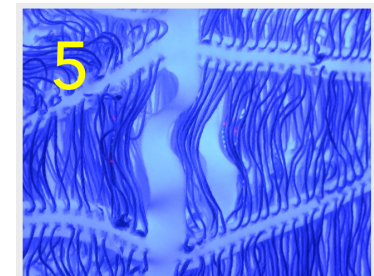
SHANGHAI SHIRT

Prof. Becky Earley and Isabel Dodd



INNER/OUTER JACKET

Clara Vuletich



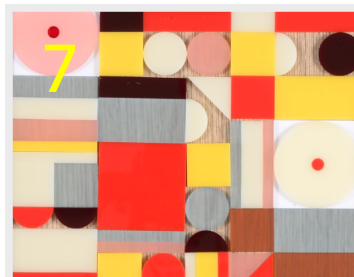
DENATURE

Miriam Ribul in collaboration with Dr. Hanna de la Motte



REDRESSING ACTIVISM

Prof. Becky Earley, Bridget Harvey and Emmeline Child



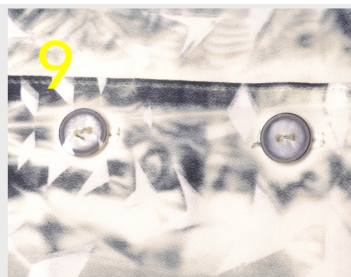
SMÖRGÅSBOARD

Melanie Bowles and Kathy Round



SWEAVER

Josefin Landälv



FAST REFASHION

Prof Becky Earley



A JUMPER TO LEND, A JUMPER TO MEND

Bridget Harvey

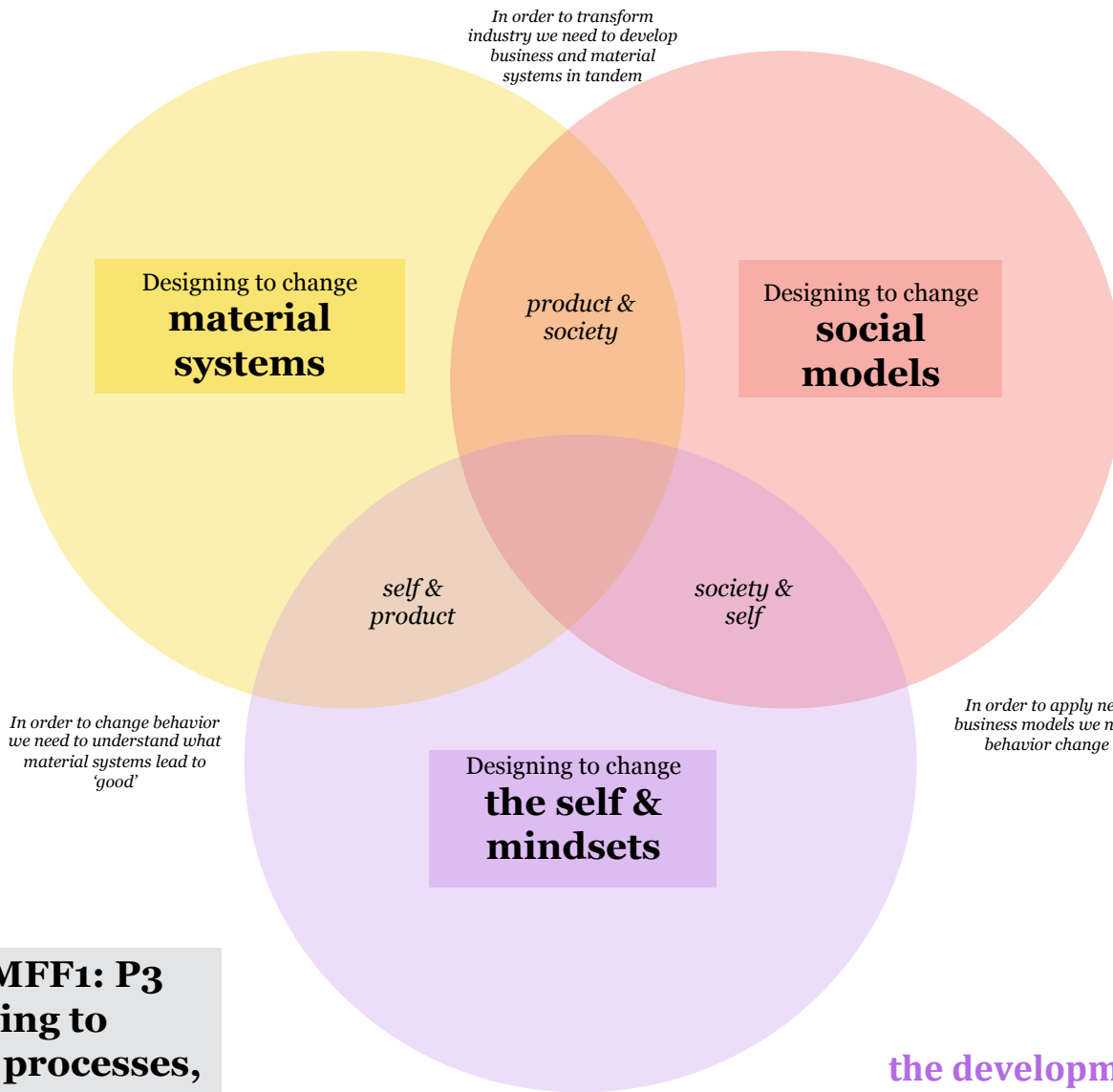


Introduction

Transforming Industry

Designing within current industrial and economic systems. The circular economy. Improving and intervening with materials and production processes. Recycling, upcycling, low toxicity, closed loop

the design of fashion products in which material cycles and their relative speeds are a priority.



Designing to change **material systems**

product & society

Designing to change **social models**

self & product

society & self

Designing to change **the self & mindsets**

New Business Models

Designing for new business models and social systems (fashion libraries, collaborative consumption, ethical production, local communities)

design opportunities for social enterprise surrounding the material cycle

Framework for MFF1: P3 Projects (Designing to change material processes, social systems and the self)
Earley, Goldsworthy & Vuletich (2015)

Changing Behaviour

Designing to change mindsets and culture, activist approaches and mindful 'user behaviour'. Institutional change and 'embeddedness'. Encouraging inner knowledge, reflexivity, altruism, empathy

the development of a new kind of consumer engagement, in which designers encourage user participation.

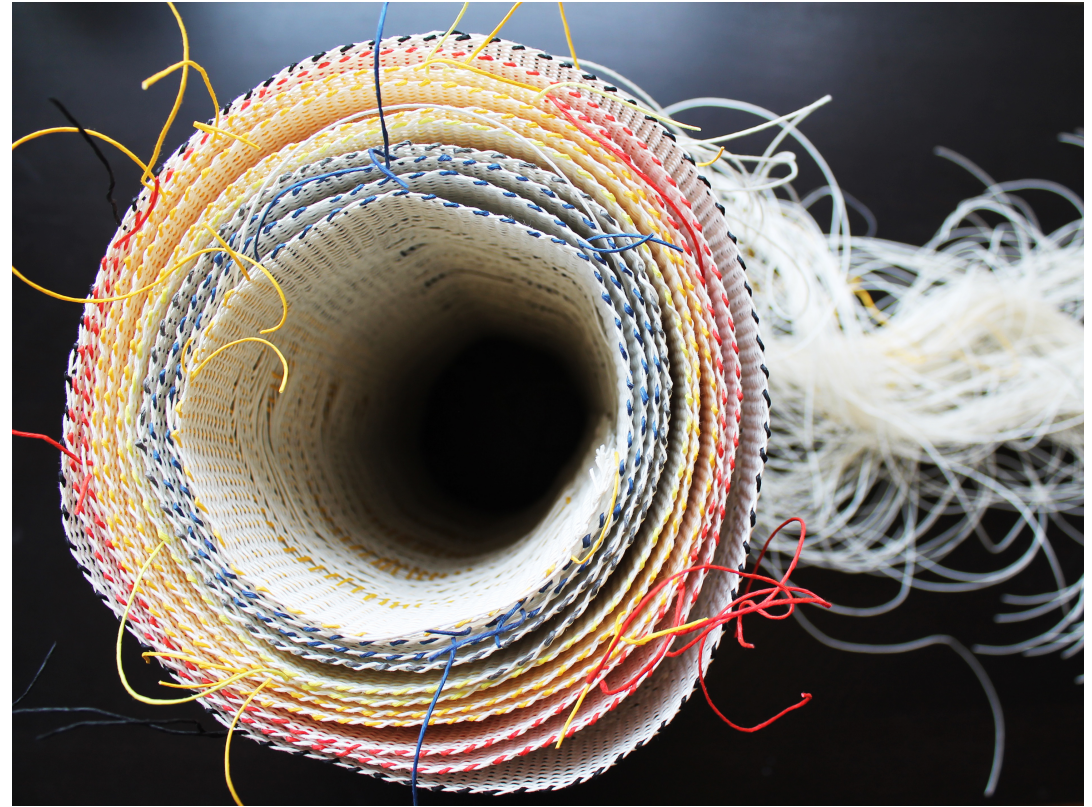


Introduction

TRASH

CASH

TIMELINE
ABOUT
PARTNERS
SIGN UP
TEAM SITE



The heroes of sustainable textiles
<https://t.co/bdnUH26lfR>

Follow us

Utilising zero-value waste textiles and fibres
with design-driven technologies to create
high quality products

→ [Read more](#)

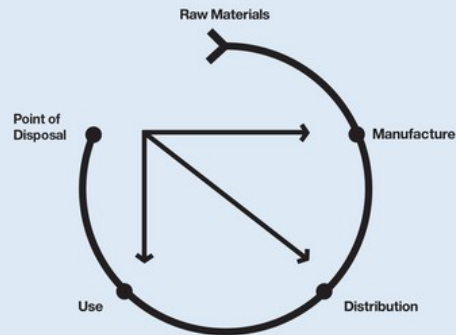
→ [Team](#)



Circular Design Thinking

Towards a Zero Waste Future: Creating Closed Loop Systems by Dr Kate Goldsworthy

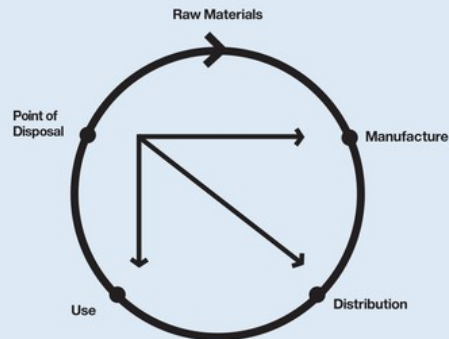
1.



Now Upcycling by Design

Limited materials with limited life cycles. Although return journeys can be designed at the end-of-life, this approach only postpones the arrival of the discarded material at landfill, where it may never biodegrade, may degrade very slowly or may add harmful materials to the environment as it breaks down.

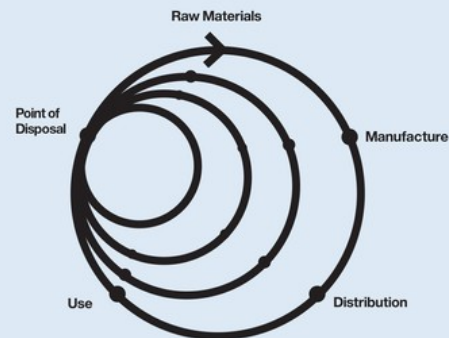
2.



Near Design for Cradle -2-Cradle

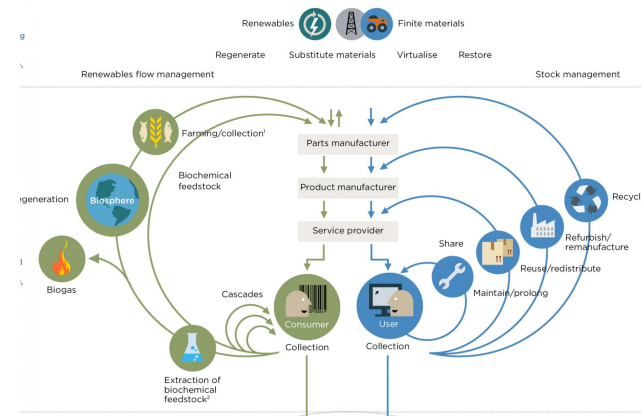
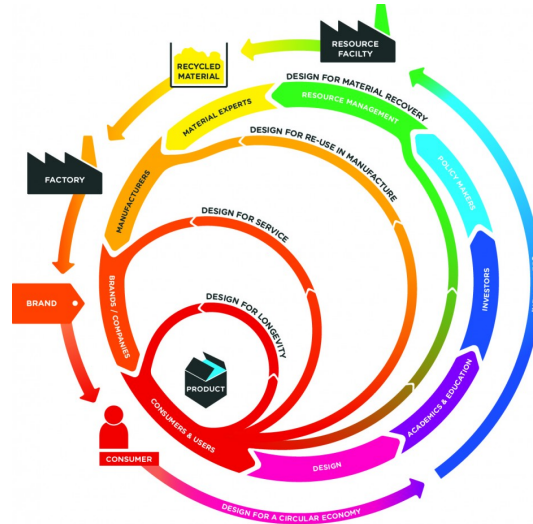
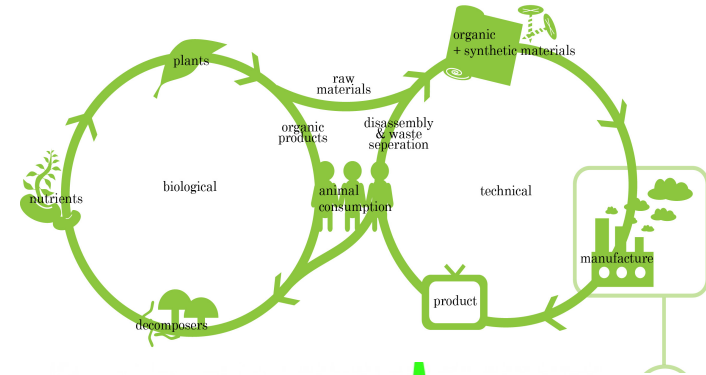
Limited materials with unlimited life cycles. By considering the barriers to recycling as part of the design brief, connected loops can be built into the material's future life from the outset. In a closed-loop, materials would never lose their value and would be designed to be recycled indefinitely.

3.



Future Design for Material Ecologies

Unlimited materials with unlimited life cycles. A genuinely sustainable future depends on creating interconnected loops, or cycles, for all industrial commodities. These cycles would be part of a scaled up system of material exchange which is open and dynamic, including all material resources in an infinite industrial ecology.

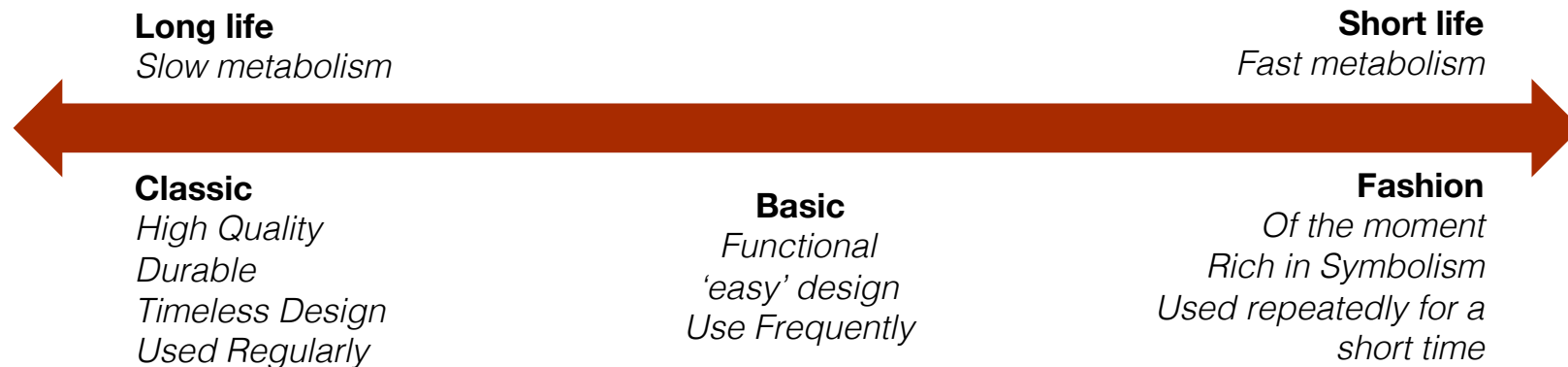




The Speedcycle: A Proportionate Approach

Previous work in the area has pointed towards designing appropriately for the garment context....

The fashion offer tends to include classics, basics and fashion pieces. These divisions seem to naturally emphasise different lengths of life and rhythms of use, perhaps allowing these characteristics to be used to develop lower impact garments. *Lifetimes, (Fletcher & Tham)*



2011. *Fashion and sustainability: The speed factor*, HEIA Journal, 18 (2), pp26-34.2010.

Slow Fashion: an invitation for systems change, Fashion Practice, 2 (2), pp259-266.

2003. (with M. Tham) *Clothing Rhythms* in E. van Hinte (ed.), *Eternally Yours: Time in Design*, Rotterdam: 010 Publishers, pp254-274.



Defining Fast & Slow

Fast Fashion = low quality, obsolescence and high impact production

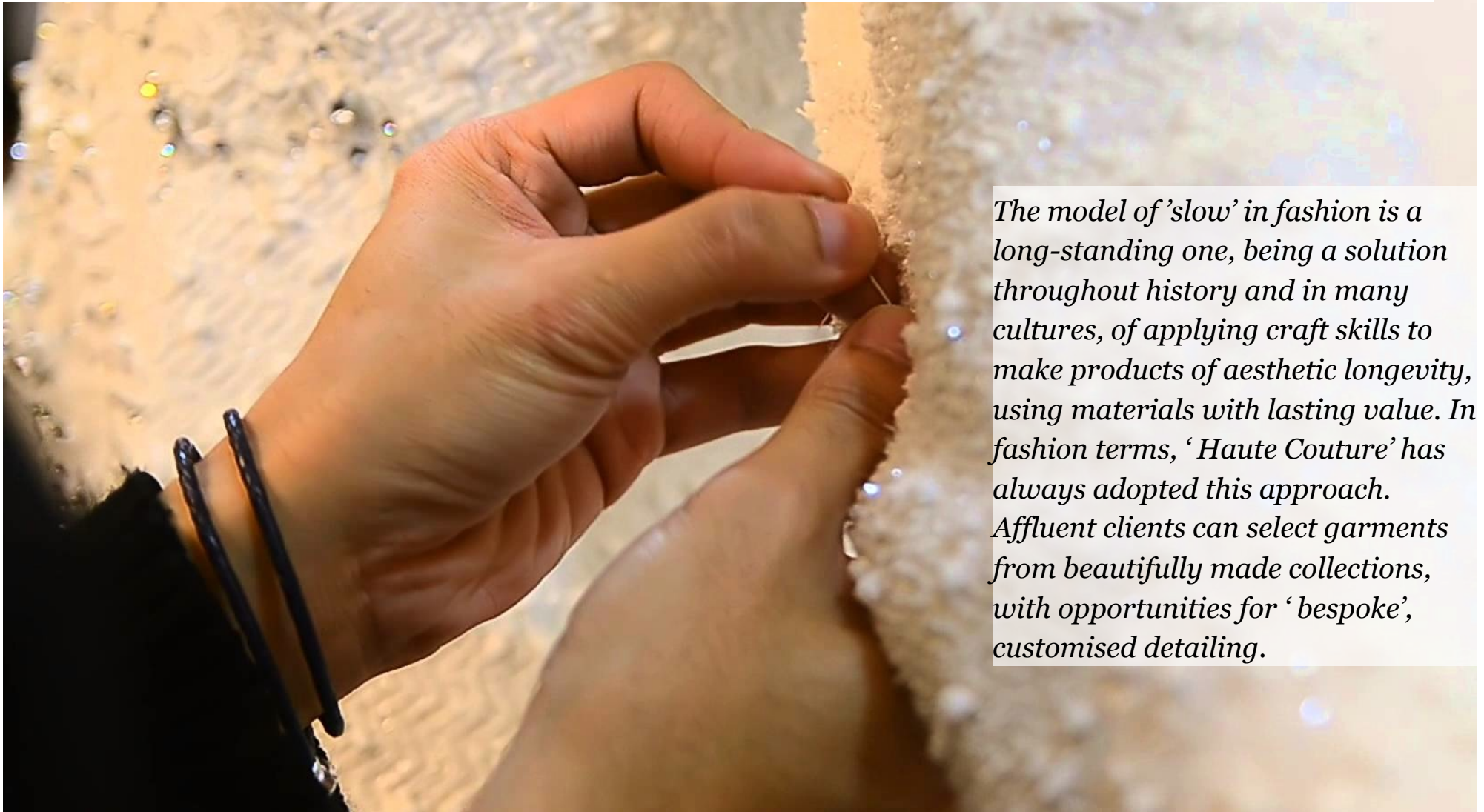


“Designed to be cheap, easy, and rapid to produce; fast fashion draws on low-cost materials and labour, short lead times, and efficient large volume production. Garments are often bought in multiples and discarded quickly for they have little perceived value. Fabric quality is poor and garment construction often fails to withstand laundering, promoting rapid replacement.”

(Fletcher, 2010)



Slow Fashion = high quality, durability and low impact production



The model of 'slow' in fashion is a long-standing one, being a solution throughout history and in many cultures, of applying craft skills to make products of aesthetic longevity, using materials with lasting value. In fashion terms, 'Haute Couture' has always adopted this approach. Affluent clients can select garments from beautifully made collections, with opportunities for 'bespoke', customised detailing.



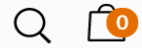
Defining Fast & Slow

A new breed of producer is emerging as entering fashion business successfully & some fashion labels are also prioritizing durability and longevity in their product ranges....



Slow: Long Life Fashion

Nudie JEANS CO



WE STRIVE
FOR SUSTAINABLE
CONSUMPTION
PATTERNS BY:

OFFERING
FREE REPAIR
SERVICE



WE STRIVE
FOR SUSTAINABLE
CONSUMPTION
PATTERNS BY:

Nudie Repair Shops

<https://www.nudiejeans.com/page/this-is-nudie-jeans>



Slow: Long Life Fashion



30 YEAR JACKET

30 YEAR COLLECTION

TROUSERS

THE JOURNAL

STORY



30 year collection (guaranteed)

<http://www.tomcridland.co.uk/pages/about>



Slow: Long Life Fashion

Filippa K Second Hand

MARKET

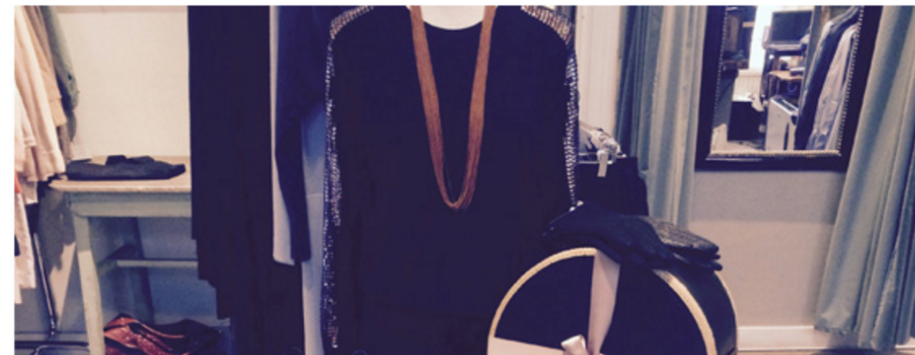
SELL WITH US

INSPIRATION

CONTACT

ENGLISH

JUDITH SECOND-HAND



Filippa K Second Hand

<http://www.filippaksecondhand.se/>



Slow: Long Life Fashion

emotional durability can be harder to design in.....





Defining Fast & Slow

Hiut Denim Co.

Your Cart 0 items £0.00



SHOP
FIT GUIDE

OUR STORY
OUR WAY
OUR FACTORY

THE RIVET PRESS
HISTORYTAG
YEAR BOOKS

CLUBS
LOVE
II AM

STOCKISTS
GIFT CARD
NEWSLETTER



Hiut Denim

<http://hiutdenim.co.uk/>

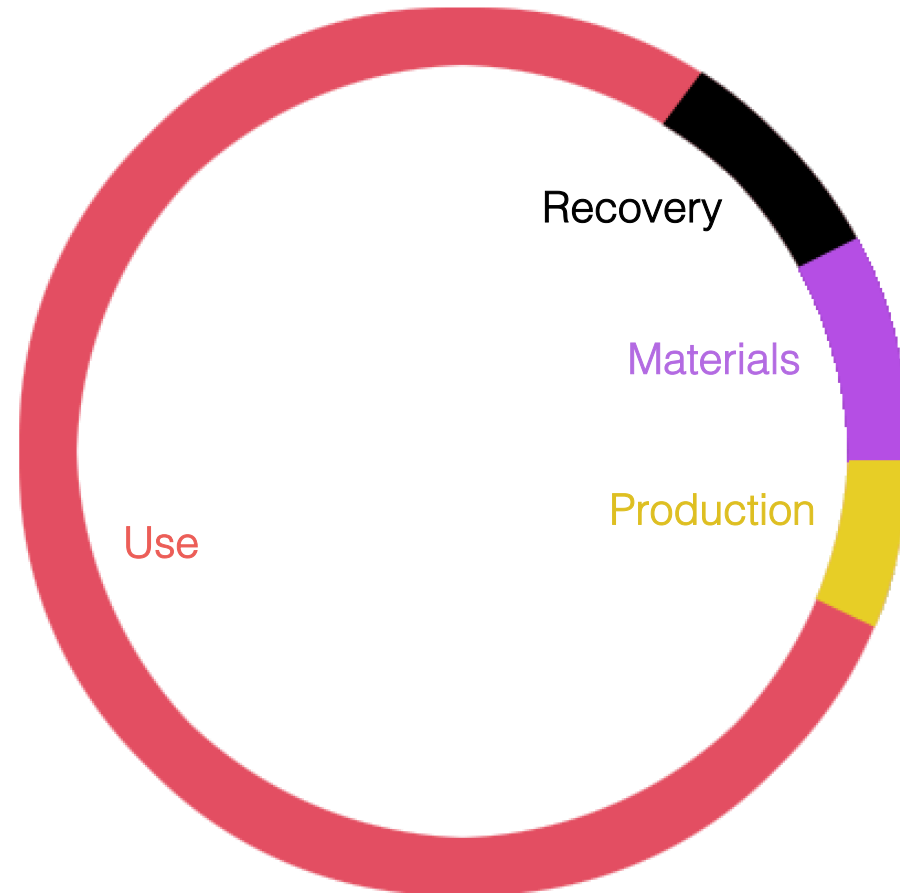


The Speedcycle: A Proportionate Approach

Extending the Use phase brings down the ‘environmental cost per wear’

Challenges:

- *To encourage the user to keep the product for longer (emotional as well as physical durability)*
- *To reduce the impacts during the use phase (low impact laundry practices)*
- *To achieve durability in materials without sacrificing material recovery at end of life.*



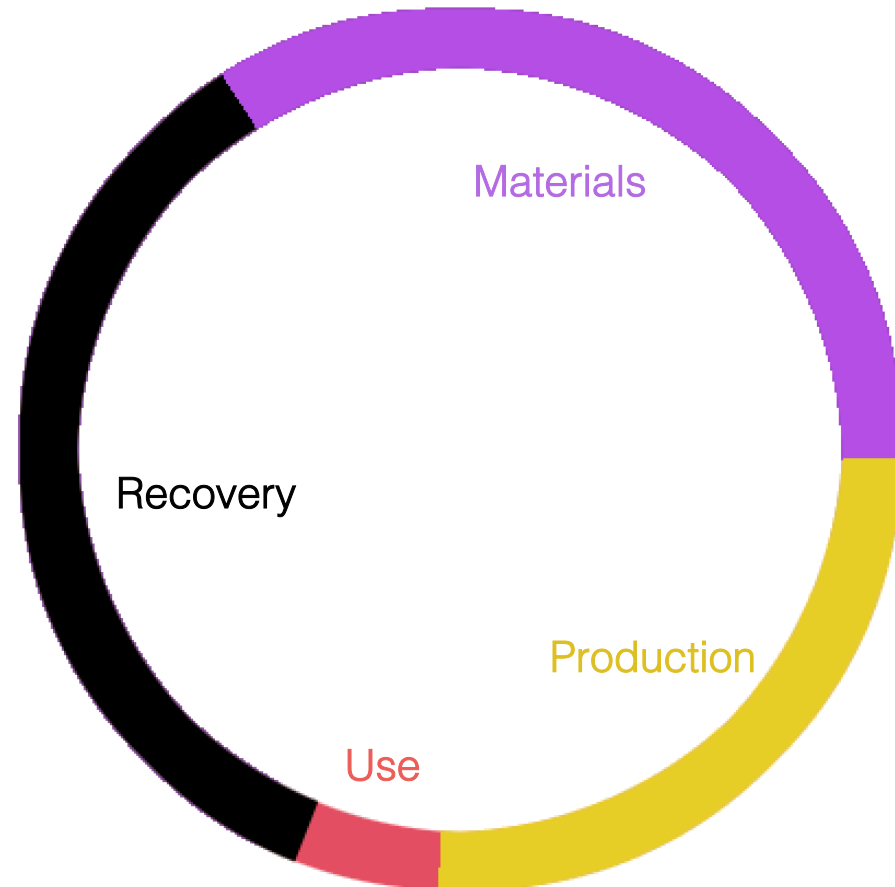


The Speedcycle: A Proportionate Approach

Reducing the Use phase places more emphasis on materials, production and recovery impacts.

Challenges:

- Trying to make fast slower will not work (the models are incompatible)*
- How can we make fast less impactful during the material and production phases?*
- Can we build the notion of speed and ease into the whole cycle....including super efficient materials recovery?*





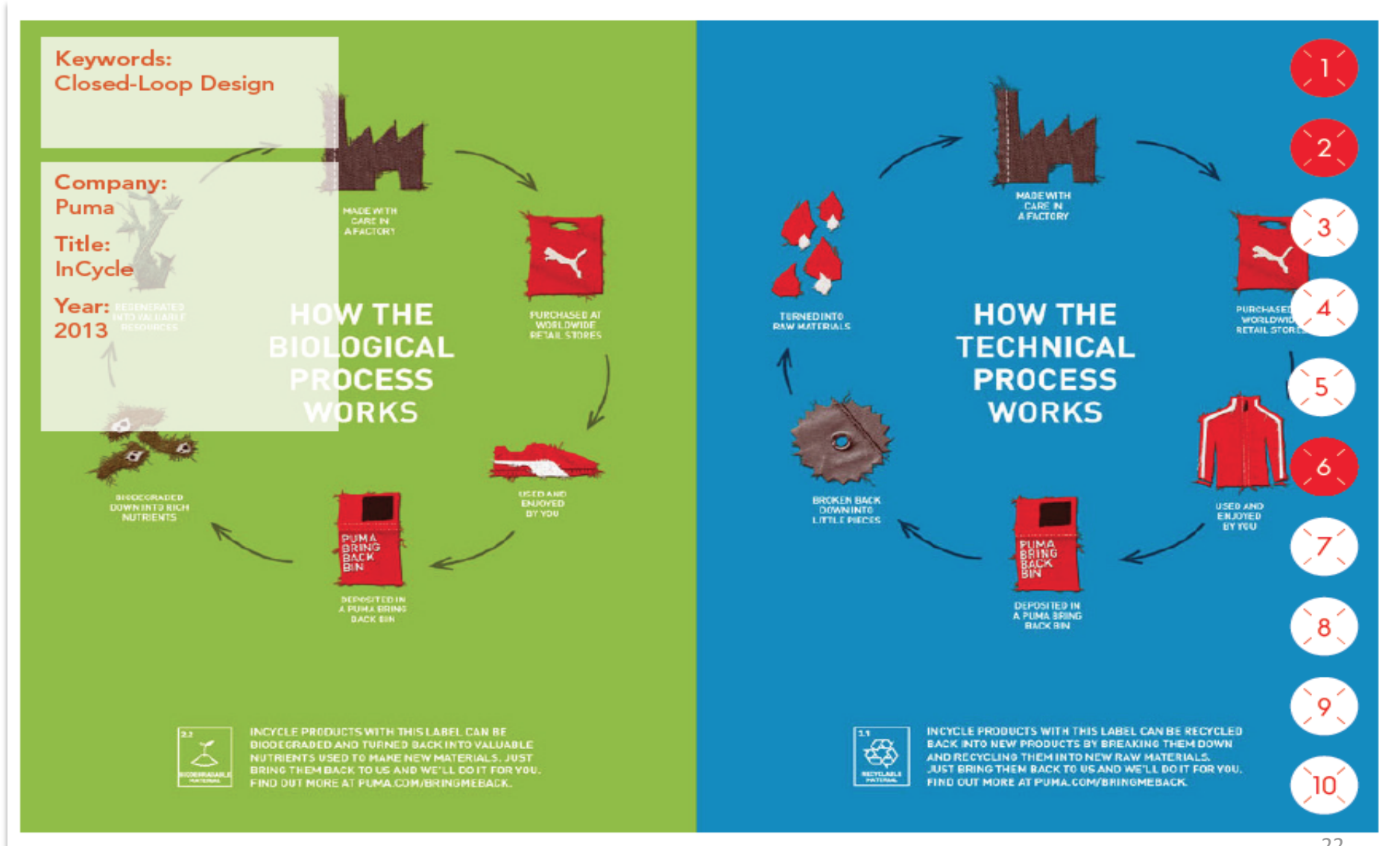
The Speedcycle: A Proportionate Approach

Can Fast ever be sustainable?



Fast: & Circular Fashion

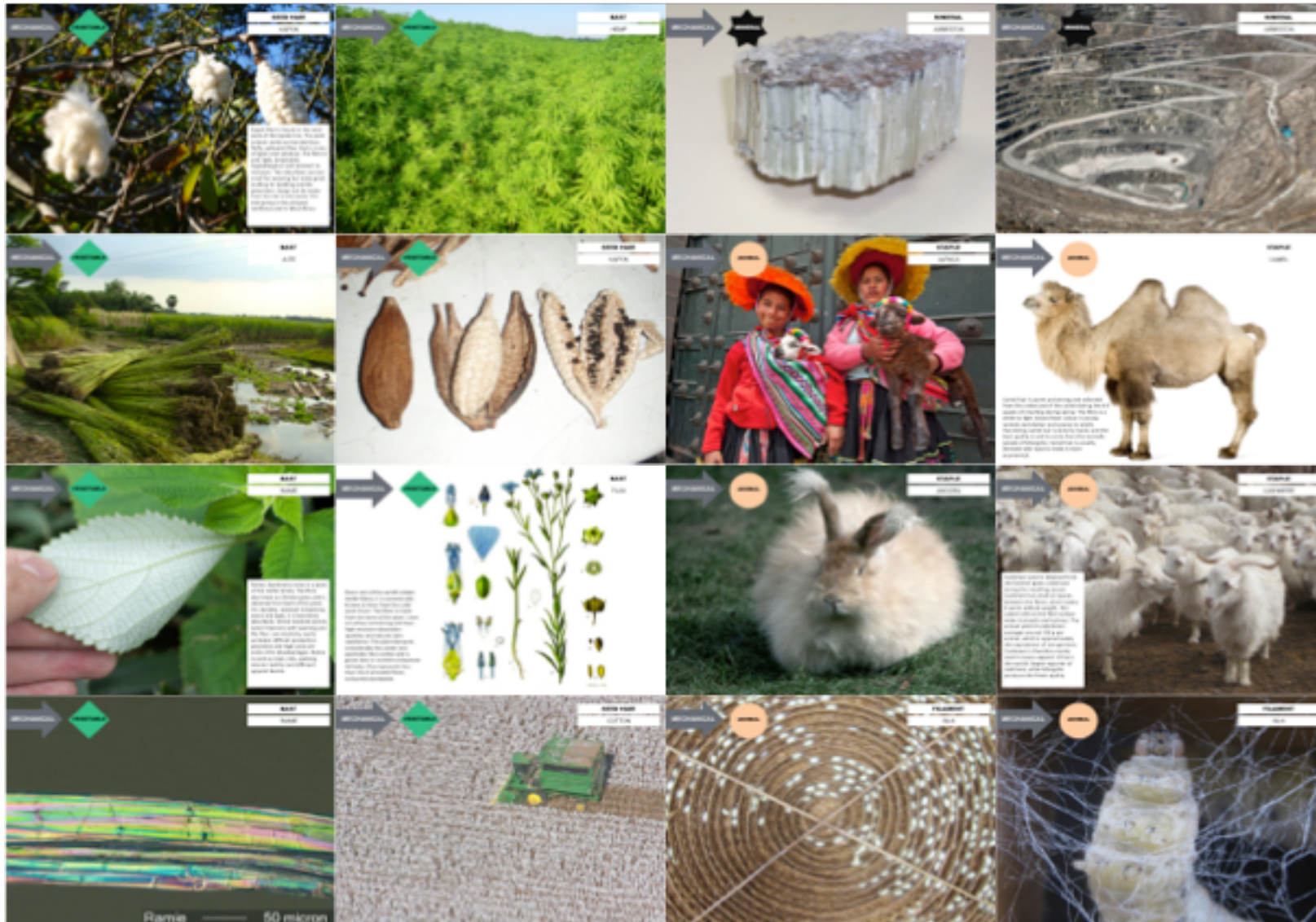
Following C2C / understanding materials and their recovery routes





Fast: & Circular Fashion

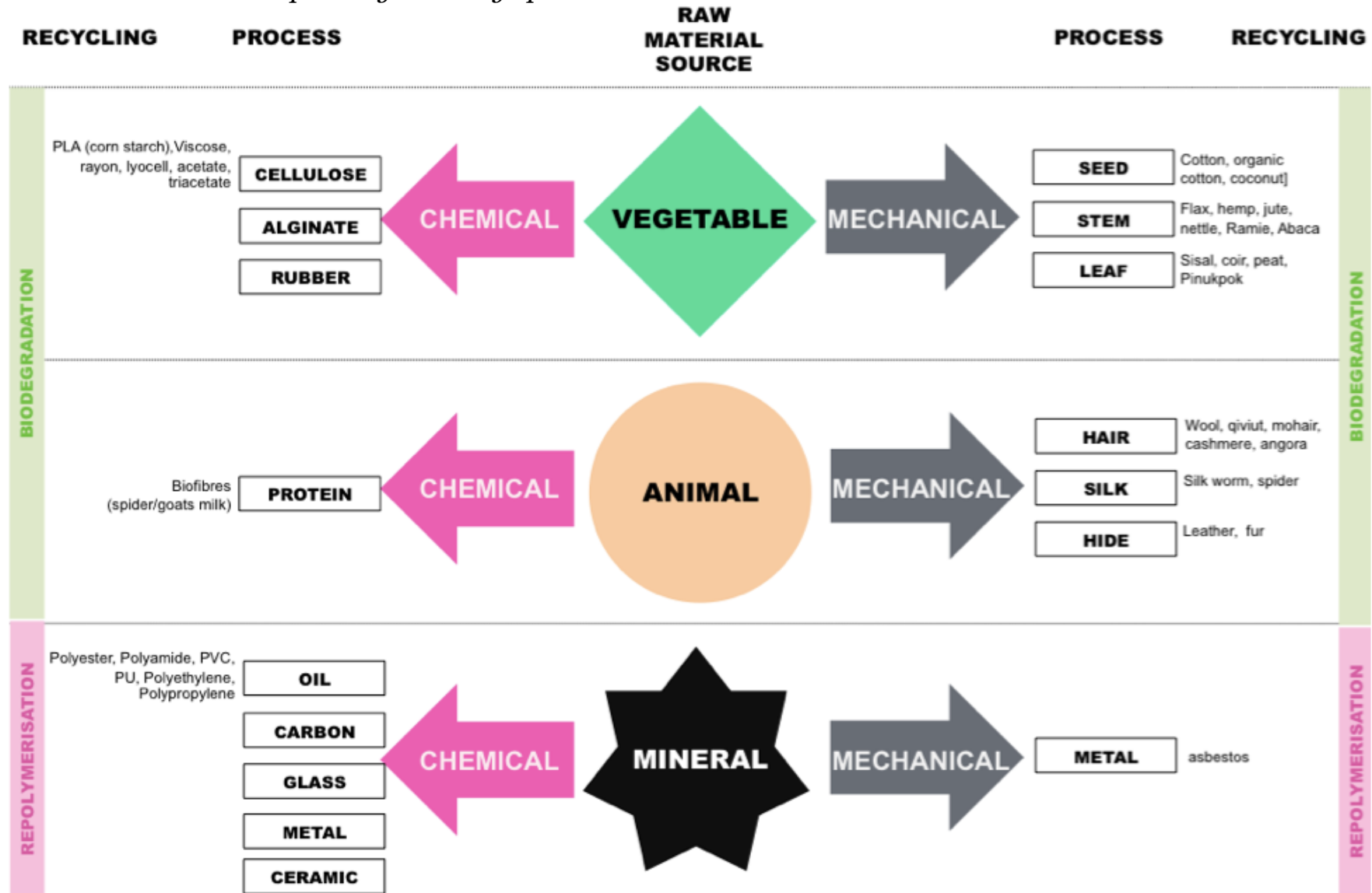
Understanding Material Journey.....





Fast: & Circular Fashion

...and their corresponding recovery options





Fast: & Circular Fashion

Natural dyes suitable for composting

Keywords:
Biodegradable Dye

**Climatex, Biodegradable Dye
(2013)**

This Swiss upholstery fabrics producer uses a sustainable dye pigment that has been developed in collaboration with Ciba-Geigy. The dye pigments were picked in accordance to their biological renewal profiles. Only 16 out of 1600 possible dyes fulfilled the strict requirements imposed for Climatex. The new dyes resulted in lowered overall production costs, as the need for filtering dyes and chemicals in the production process was eliminated.





Fast: & Circular Fashion

Natural dyes suitable for composting

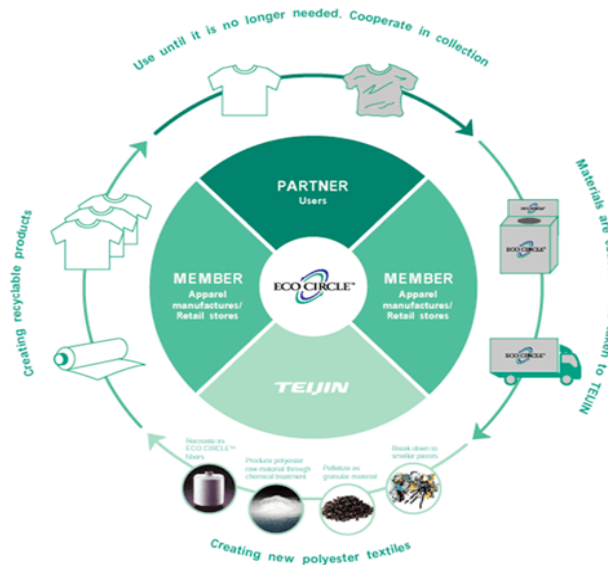


Earth Dyeing, (2011), Hyun Jin Jeong. MA Textile Futures, CSM. A project to rediscover everyday materials from nature. The various kinds of soil from different geographical locations create a varied and subtle colour palette.
Ref: <http://www.earthdyeing.com>



Fast: & Circular Fashion

Synthetic materials suitable for chemical and molecular recycling



3000 T-shirts*¹ recycled through ECO CIRCLE™...

Compared with making new polyester raw material from petroleum.

CO₂ emissions reduced by **77%***²



228 cedar trees*³

Energy use reduced **84%**



Energy savings equal to energy usage by one household*⁴

(In case polyester products are collected and recycled in Japan.)

*1. Assuming 1t *2. Including CO₂ emissions during incineration without recycling *3. Assuming 3.2t *4. Assuming 60,000MJ



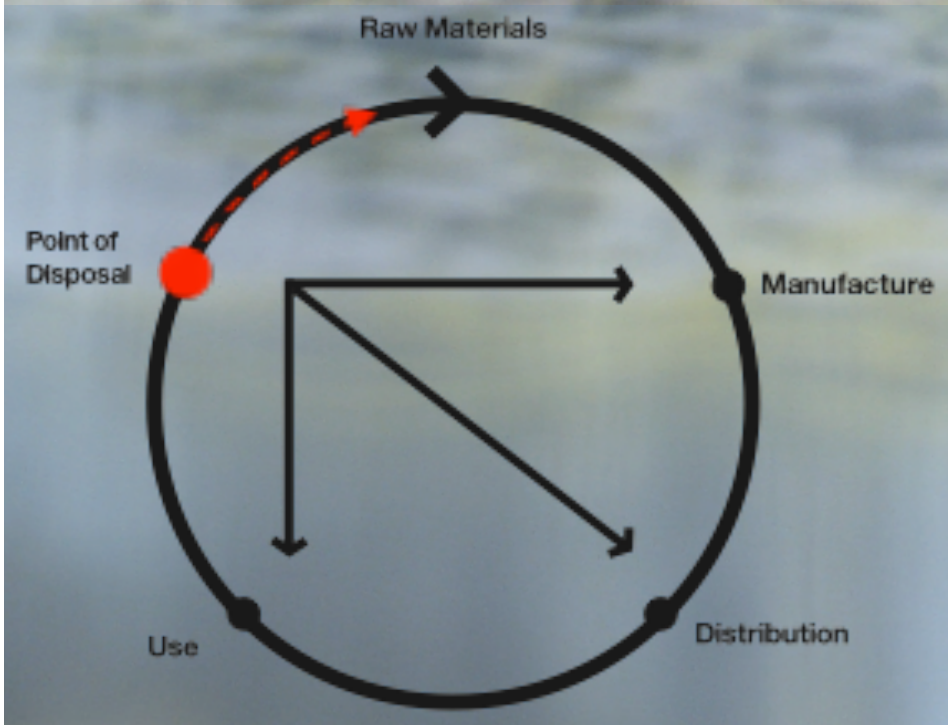
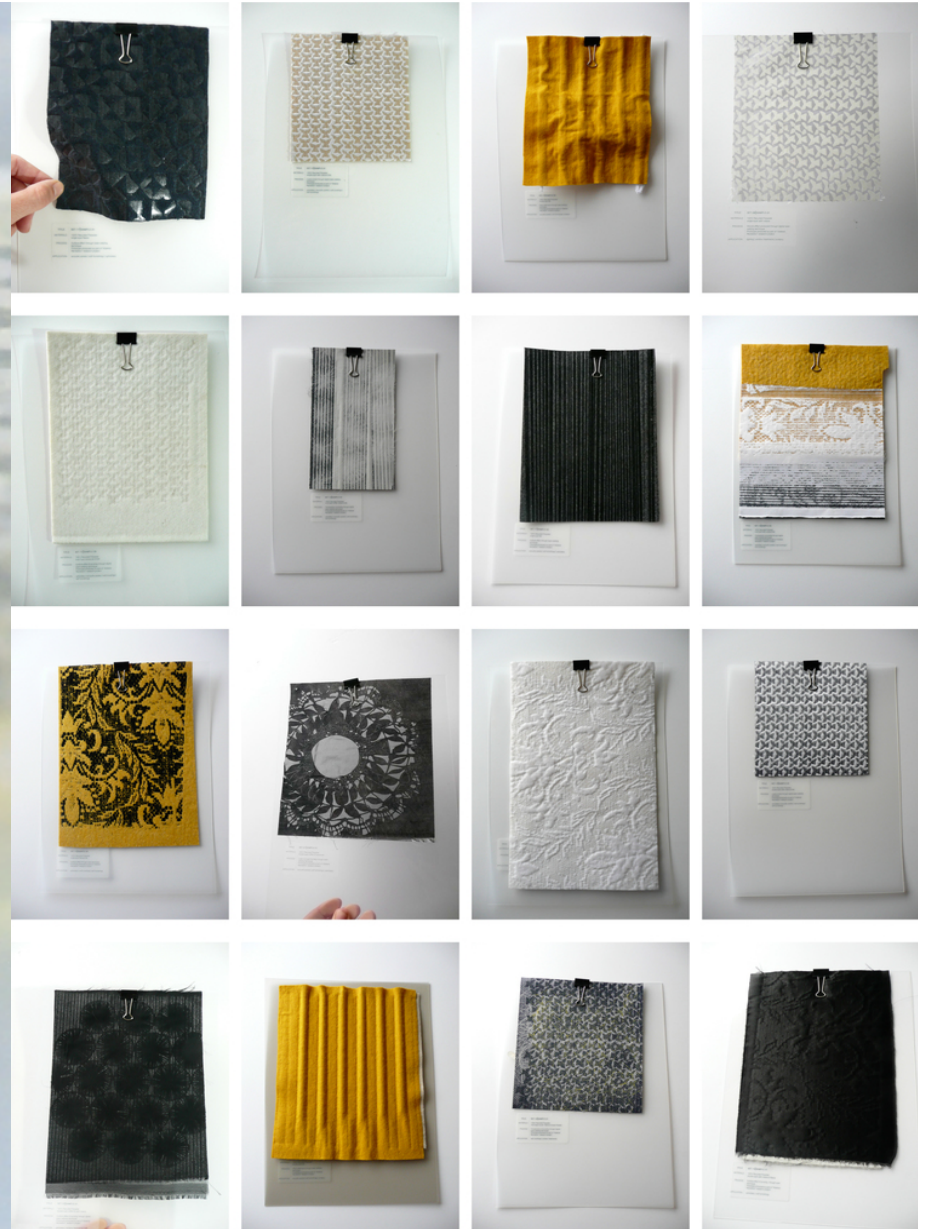
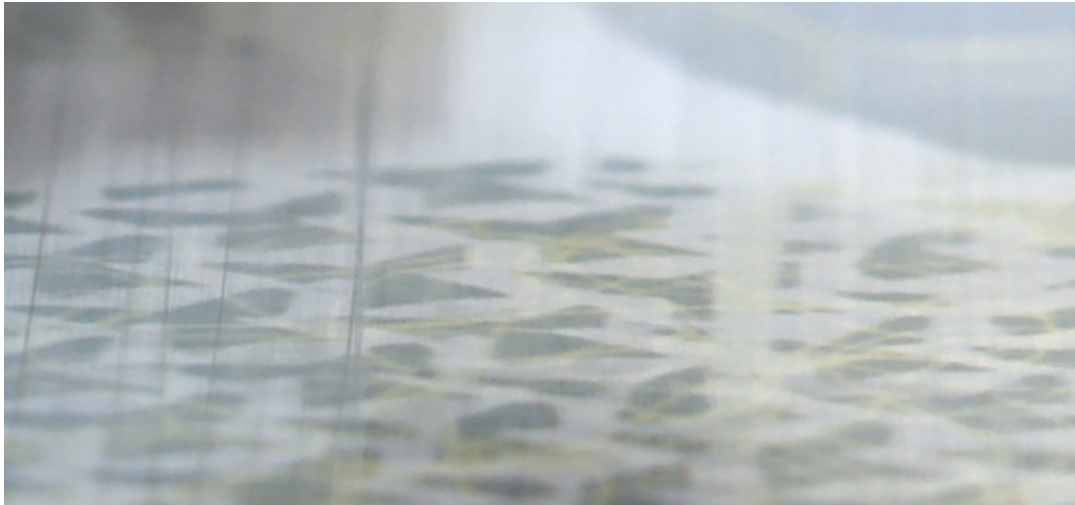
<http://www.ecocircle.jp/en/>





Fast: & Circular Fashion

Monomaterials...





Fast: & Circular Fashion

New technologies coming online



worn
again



K E R I N G

H&M

H&M are moving towards being leaders in sustainable fashion and have recently teamed up with Kering Group and Worn Again to develop textile-to-textile chemical recycling technology. 'In the long term this could change the way fashion is made and massively reduce the need for extracting virgin resources from our planet.'



Fast: & Circular Fashion

Reducing impacts during production



Producing a single pair of cotton-denim jeans, Ellams says, isn't just energy-intensive. It also uses an average of 42 liters of water, along with up to 15 dyeing vats full of toxic chemicals. Her greener alternative, on the other hand, costs roughly £27 to make. Plus, it drastically reduces carbon emissions through a closed-loop production process that manages close to 100 percent recovery of the solvent used to render the wood into fiber.

Dawn Ellams, 2013

<http://www.ecouterre.com/could-wooden-jeans-reduce-the-denim-industrys-carbon-footprint/>



Fast: & Circular Fashion

Reducing impacts during production

Keywords:
Minimal Seam
Construction

Company:
David Telfer

Title:
Construct

Year:
2010

MAKINOSH



PULLOVER SHIRT



BOILED WOOL TROUSER





Fast: & Circular Fashion

Bringing production close to the user.....



<https://www.somersetshouse.org.uk/visual-arts/knyttan-factory-of-the-future>

<https://www.unmade.com/>



Fast: & Circular Fashion

Removing the need for laundry impacts.....

Kay Politowicz, Short Life
(2012)

The 'Short Life' collection was born from an increasing interest in the potential for design to affect the environmentally damaging effects of 'fast fashion' throwaway culture. 'Short Life' is designing out laundry altogether and its associated environmental impact. The collection proposes new industrial alliances between fashion fabrics, paper manufacturing and recycling, as part of a closed-loop system of production, disposal and renewal.





Fast: & Circular Fashion

MISTRA Phase 2: 2015-2019
Systemic change towards
sustainability for the Swedish Fashion Industry



*To explore and evaluate the environmental potential of
short-life vs. long-life garments for a sustainable
circular economy.*

OBJECTIVE 2
**DESIGNING
FOR LONG-
LIFE**

super-long
lasting

OBJECTIVE 2
**DESIGNING
FOR SHORT-
LIFE**

ultra fast-
forward

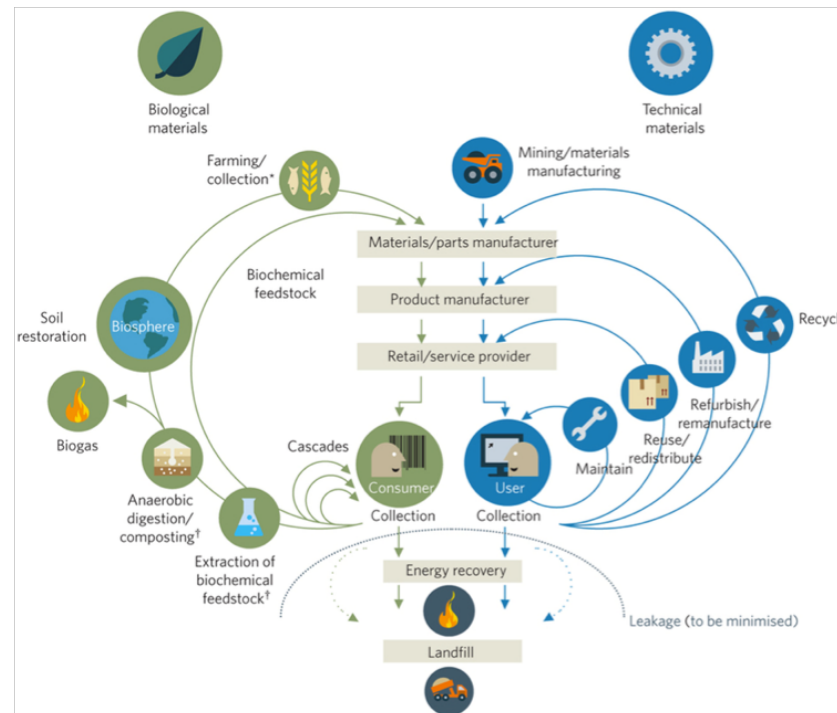
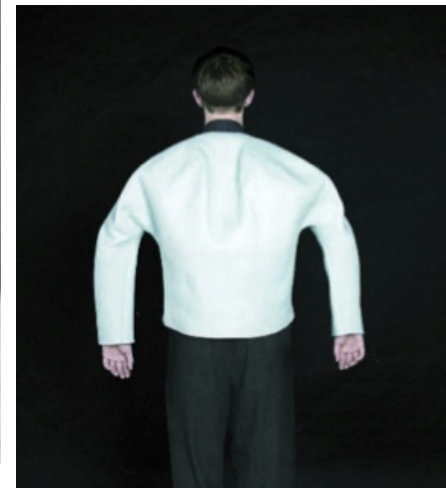
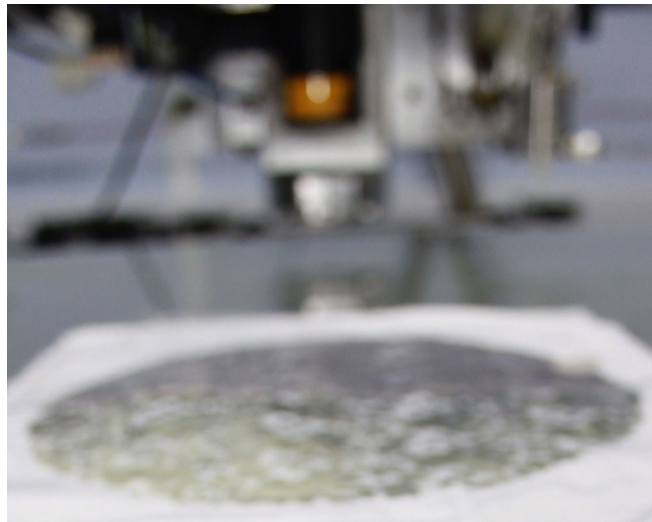
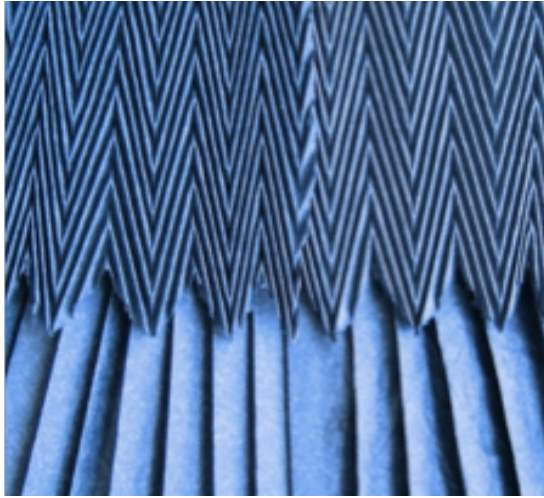


Figure xx: The Circular Economy. Source: Ellen MacArthur Foundation



Ultra Fast Forward





Ultra Fast Forward



Ahlstrom Factory
WW2 + Baby Jacket in
Paper



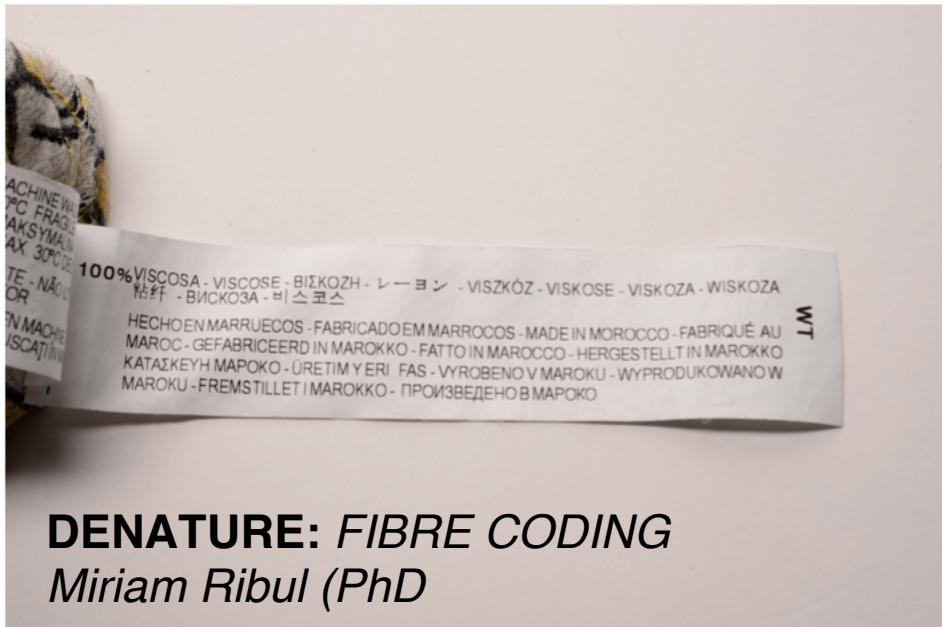
Ultra Fast Forward



*ASAP Jacket,
Kay Politowicz & Kate Goldsworthy, 2014
(with David Telfer, Sandy McLennan, Hjalmar
Granberg)*



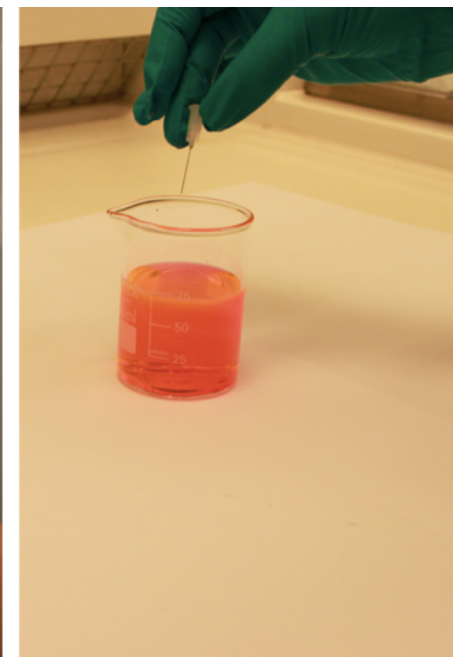
Ultra Fast Forward



DENATURE: FIBRE CODING
Miriam Ribul (PhD)



Ultra Fast Forward

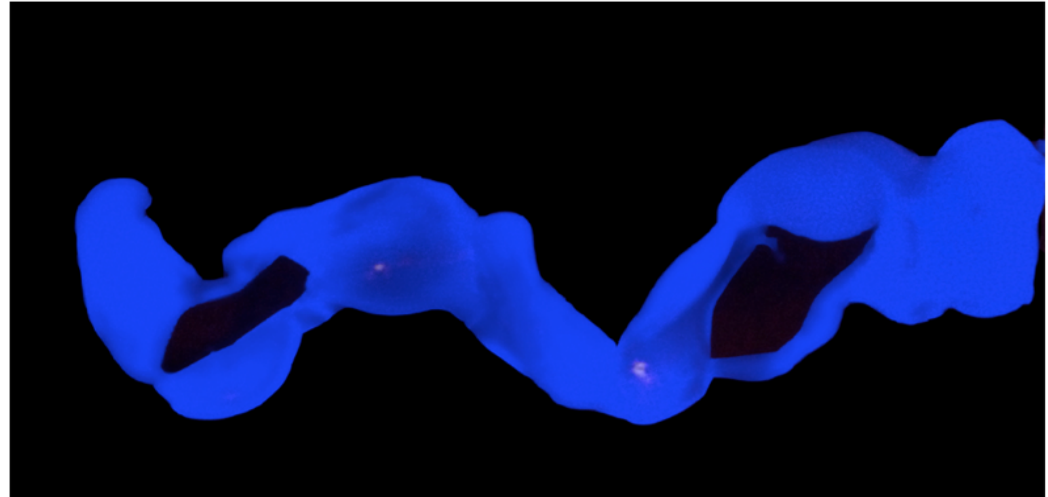
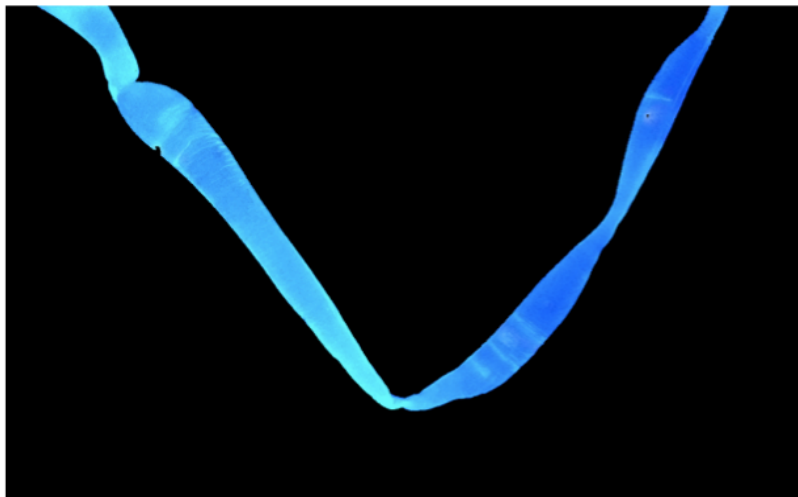
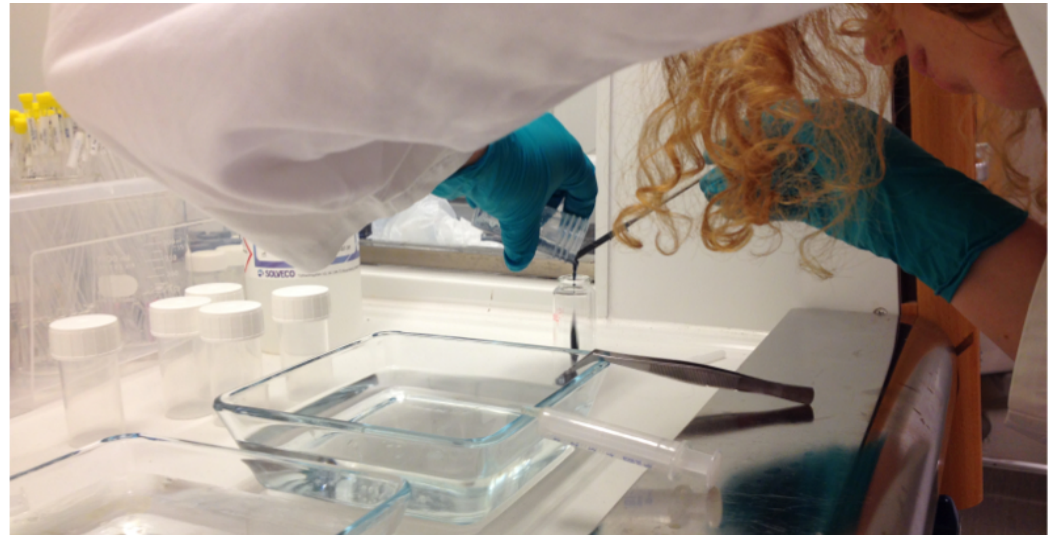
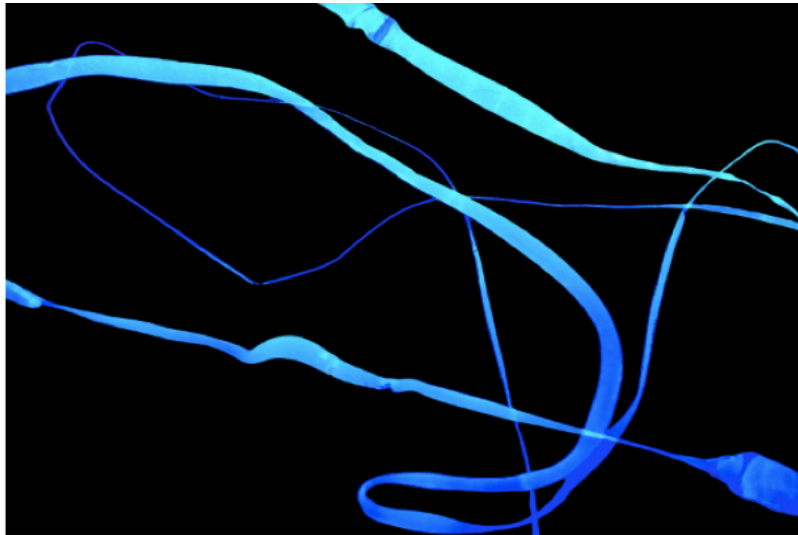


DENATURE: FIBRE CODING
Miriam Ribul (PhD)





Ultra Fast Forward



DeNAture is a material coding system that reveals invisible information for the next generations



Ultra Fast Forward

- Materials – compostable , recyclable, **monomaterial**
- Production – distributed, digital, **connected, adaptable, low impact**
- Use – no launder, services, **short life**
- Disposal – clear route to recycling, **multiple loops back to the raw material**

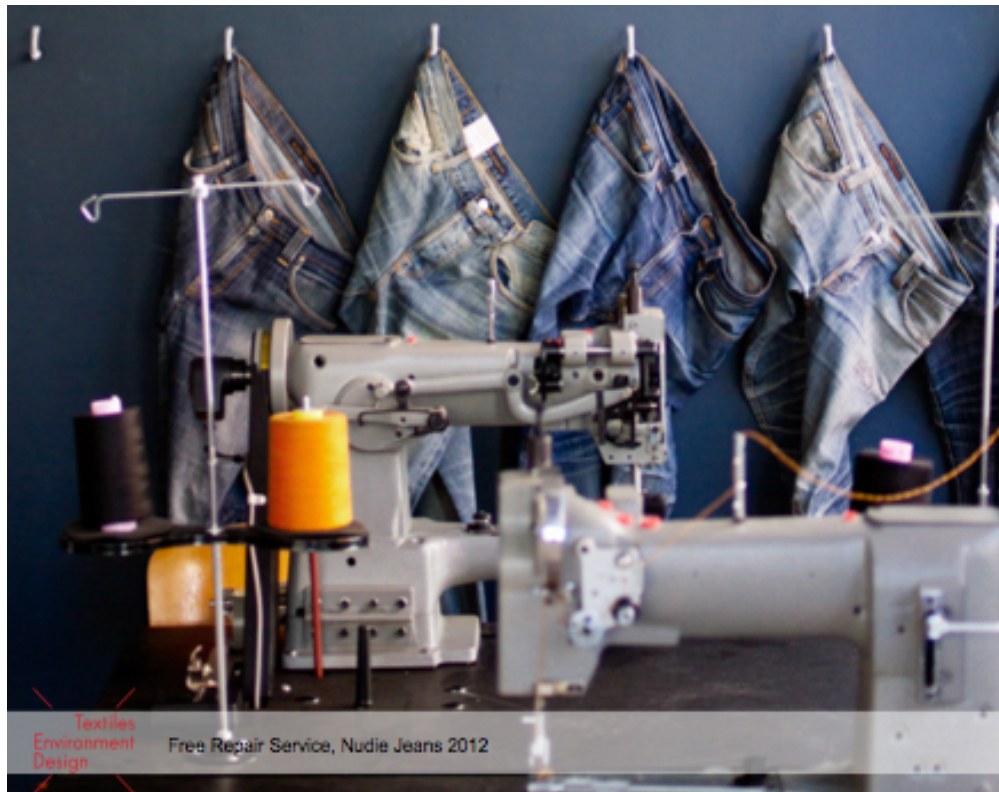
Super Long Lasting

- Materials
- Production
- Use
- Disposal



Super Long Lasting

- Materials – durable, resilient
- Production – quality, craftsmanship
- Use – repair, services
- Disposal – clear route to reuse/recycling



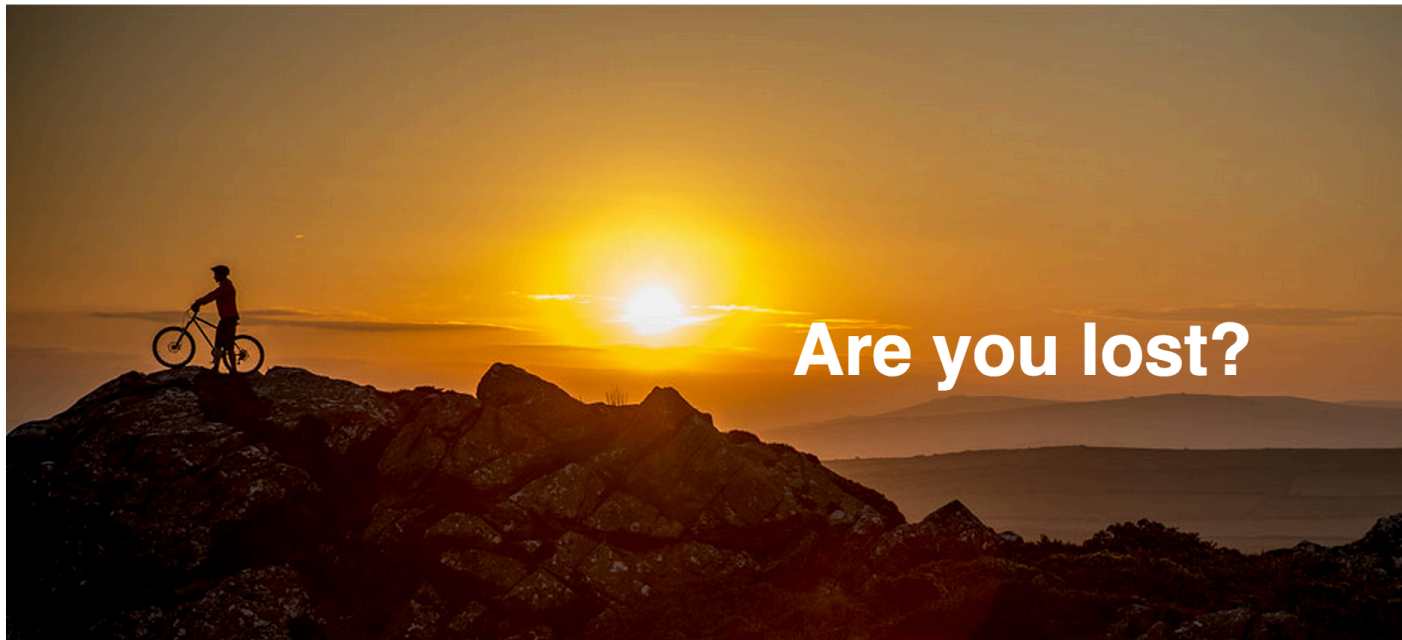


Super Long Lasting



howies® EST 1995

[mens](#) [womens](#) [new in](#) [info](#) [the stream](#)



Are you lost?



Super Long Lasting



 Super Long Lasting



Super Long Lasting

[Top 100](#) [Collections](#) [Outputs](#) [Methods](#) [Credits](#) [Links](#) [Bio](#)

Upcycling Textiles

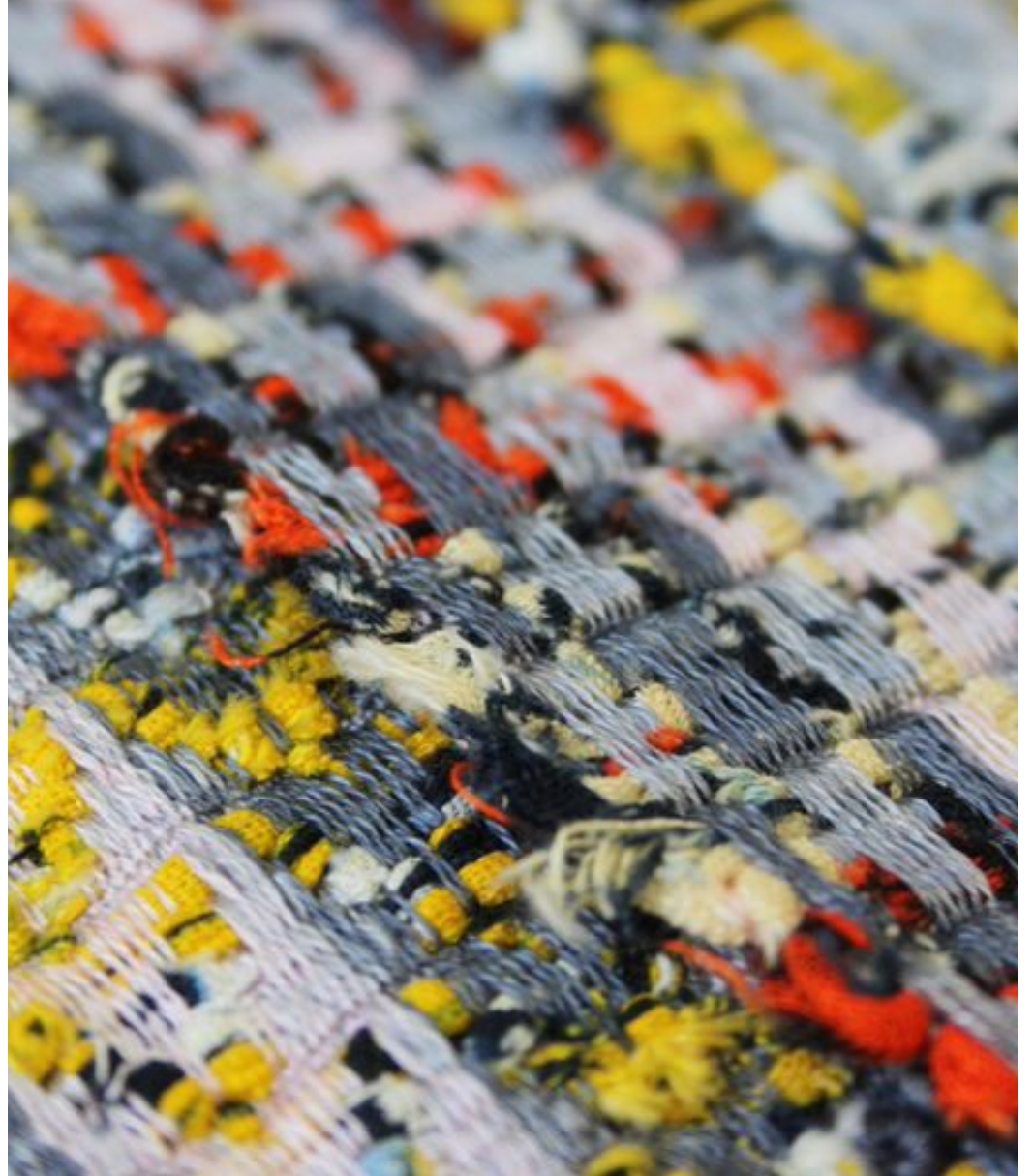
A digital sketchbook for the Top 100 project



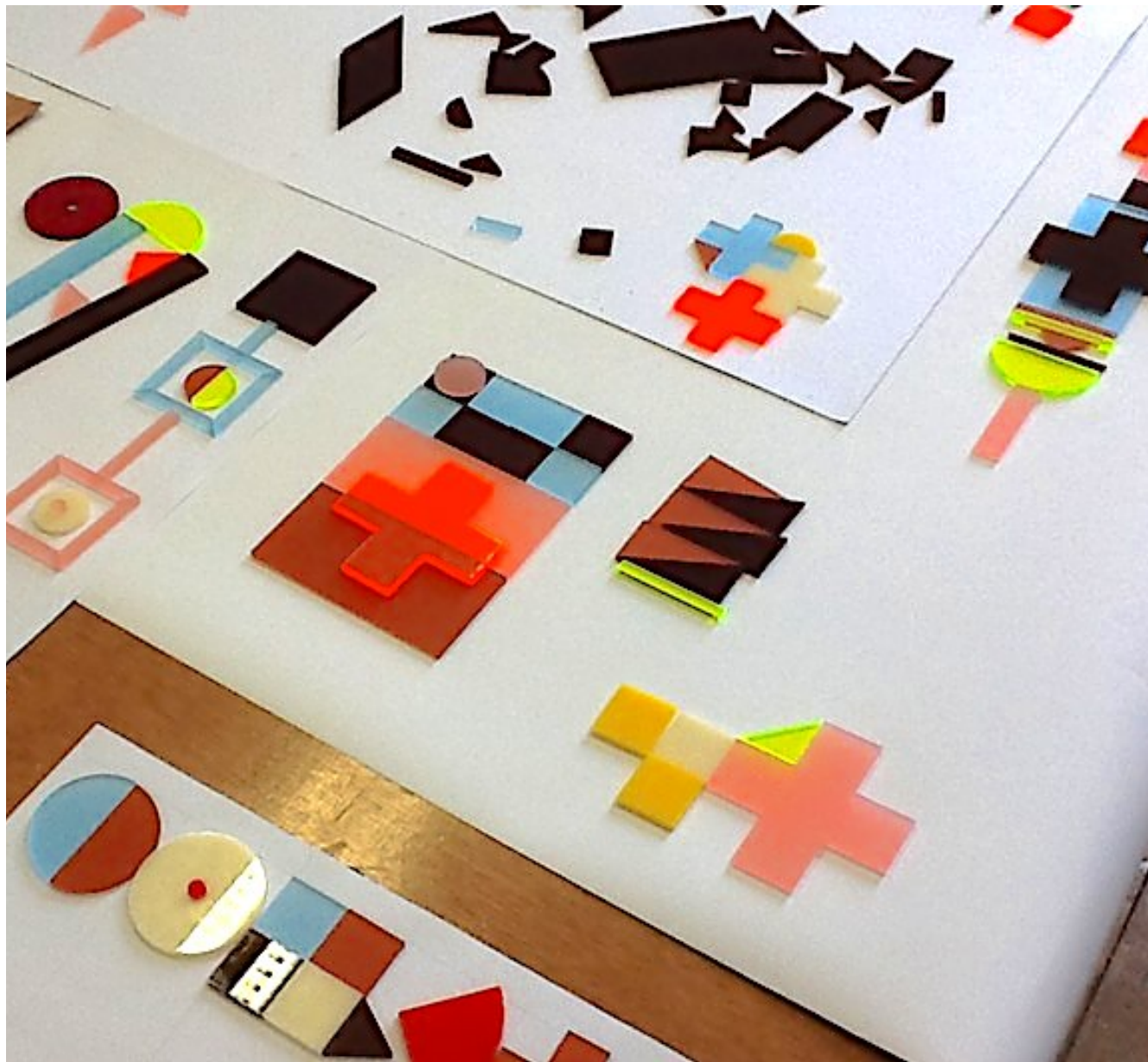
 Super Long Lasting

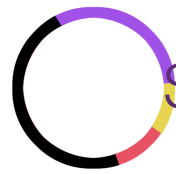


 Super Long Lasting



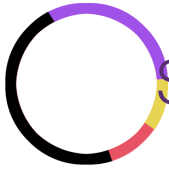
Super Long Lasting





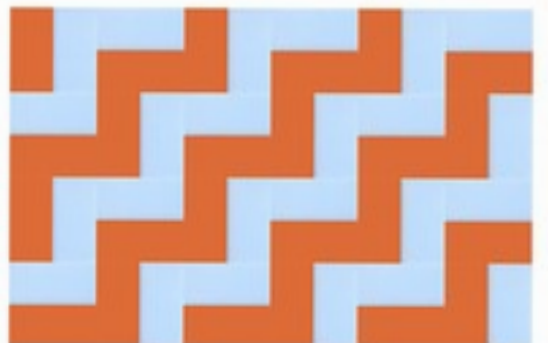
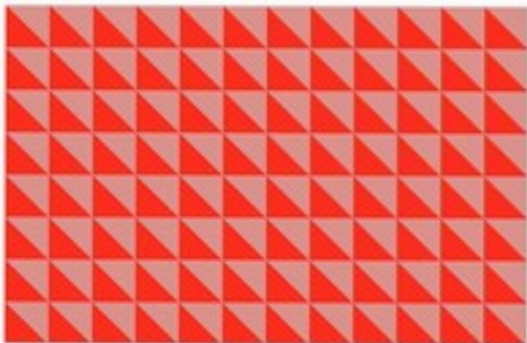
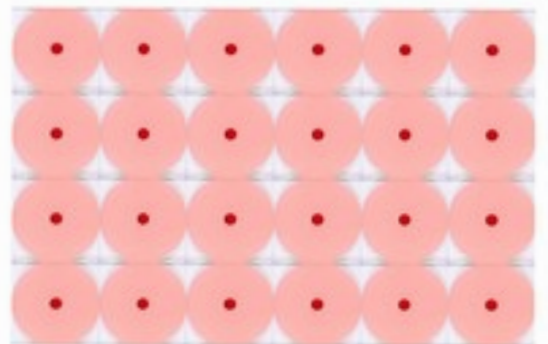
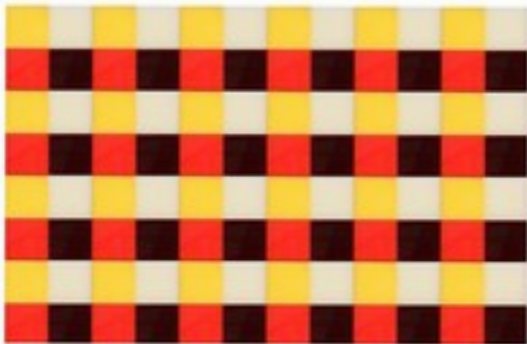
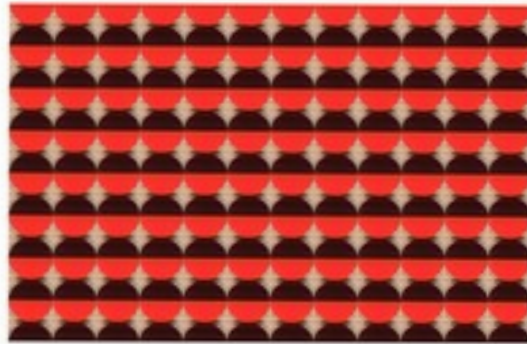
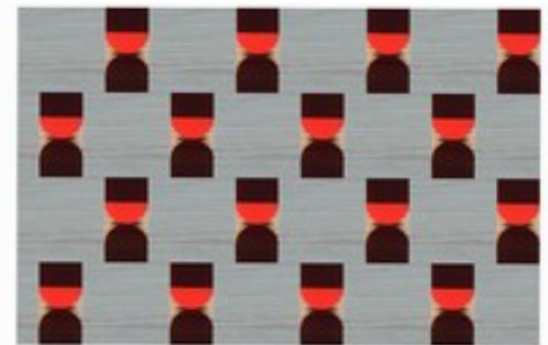
Super Long Lasting

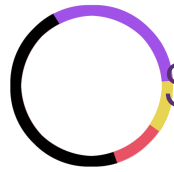




Super Long Lasting

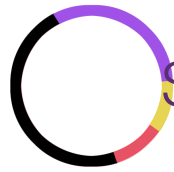
Print, Make, Wear :: Creative Projects for Digital Textile Design :: Melanie Bowles and The People's Print



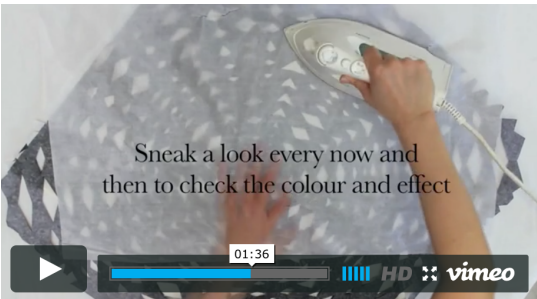
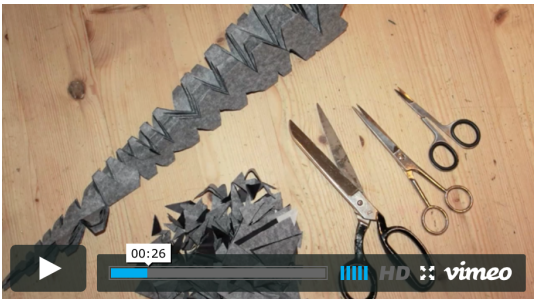


Super Long Lasting / USE, DISPOSAL, PRODUCTION





Super Long Lasting



Super Long Lasting



Transitory Textiles:
Qualities and Values for
the Transitory Textile
Design Practitioner
(2011 – 2016)



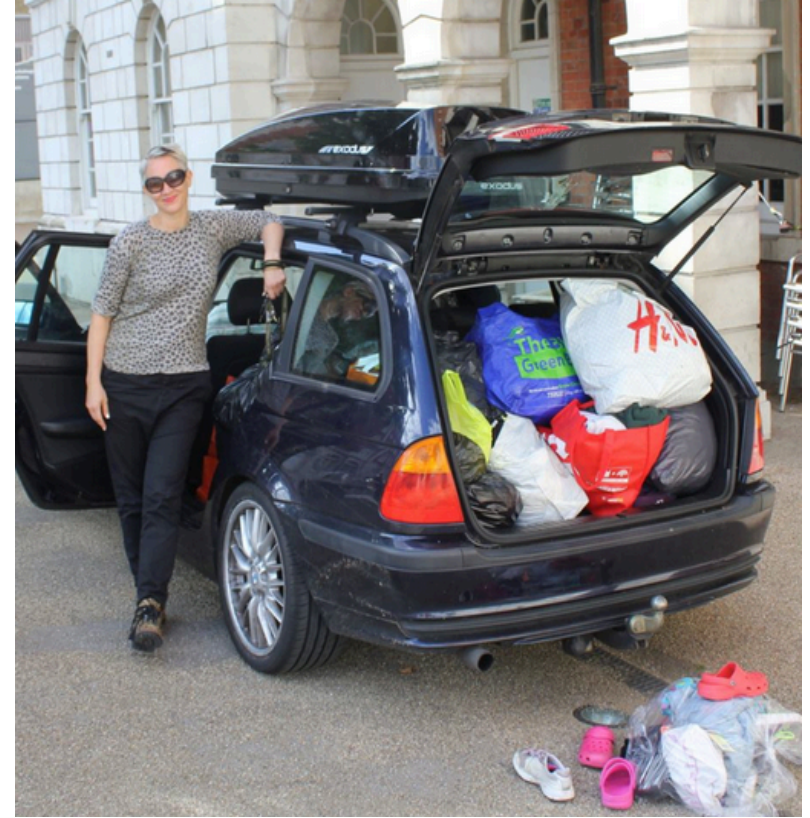
Super Long Lasting



upcycle a set of shirts, creating minarui



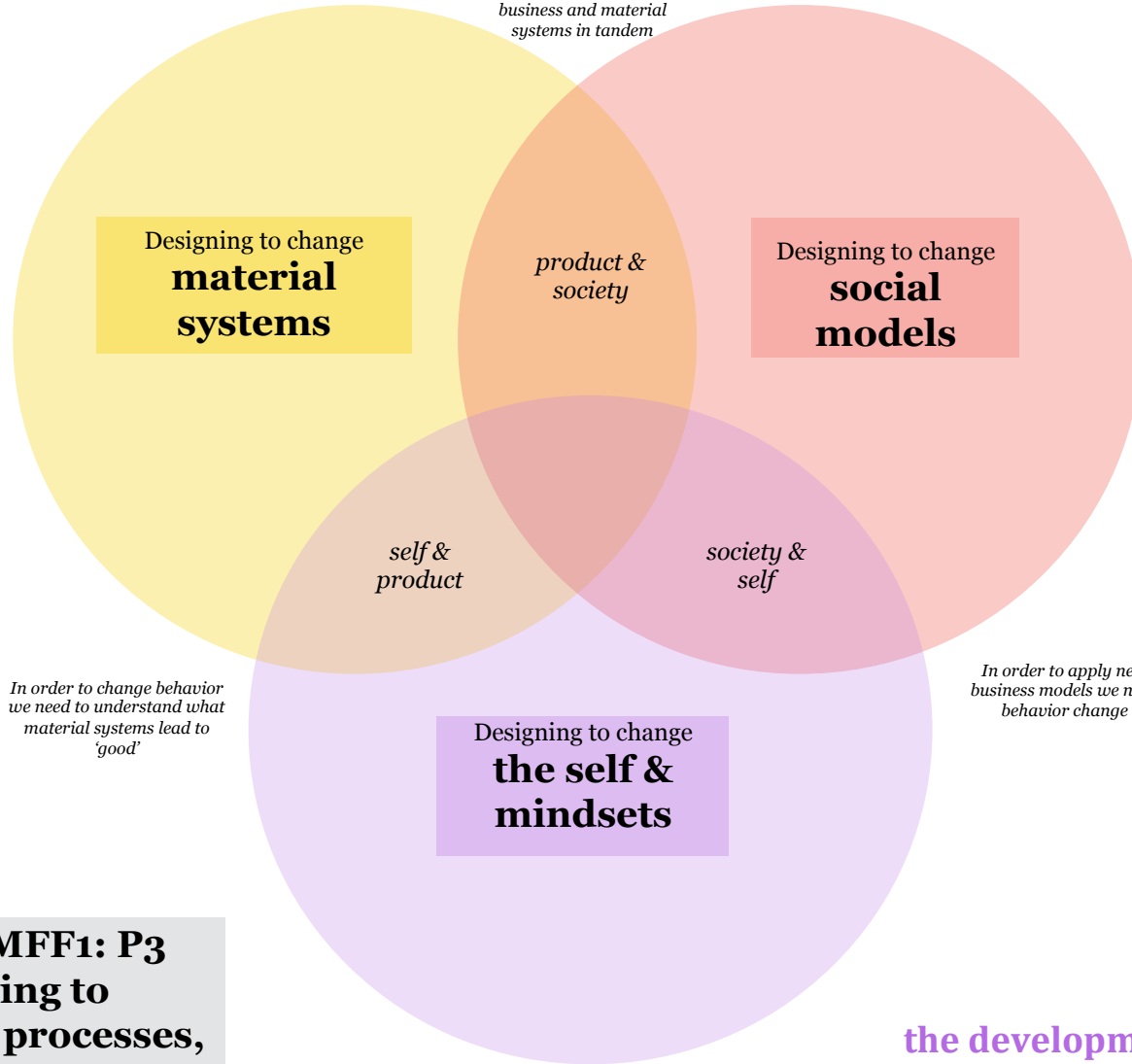
Super Long Lasting





Materials, Models, Mindsets

In order to transform industry we need to develop business and material systems in tandem



Transforming Industry

Designing within current industrial and economic systems. The circular economy. Improving and intervening with materials and production processes. Recycling, upcycling, low toxicity, closed loop

the design of fashion products in which material cycles and their relative speeds are a priority.

New Business Models

Designing for new business models and social systems (fashion libraries, collaborative consumption, ethical production, local communities)

design opportunities for social enterprise surrounding the material cycle

In order to change behavior we need to understand what material systems lead to 'good'

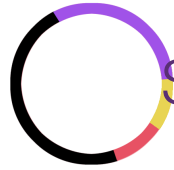
In order to apply new business models we need behavior change

Framework for MFF1: P3 Projects (Designing to change material processes, social systems and the self)
Earley, Goldsworthy & Vuletich (2015)

Changing Behaviour

Designing to change mindsets and culture, activist approaches and mindful 'user behaviour'. Institutional change and 'embeddedness'. Encouraging inner knowledge, reflexivity, altruism, empathy

the development of a new kind of consumer engagement, in which designers encourage user participation.



Super Long Lasting

- Materials – durable, resilient, **adaptable**
- Production – quality, craftsmanship, **open, engaged, participatory**
- Use – repair, services, **styling, remaking**
- Disposal – clear route to reuse/recycling, **multiple loops back to the cycle**



Conclusion





Thank You

[Top](#) [About](#) [Abstracts](#) [Programme](#) [Location](#) [Registration](#)

CIRCULAR TRANSITIONS

ual: university
of the arts
london



A Mistra Future Fashion Conference on Textile Design and the Circular Economy

23–24 November 2016

Chelsea College of Arts & Tate Britain, London

Sign up below for updates on Circular Transitions:

[Subscribe](#)



Circular Transitions aims to create the vision of designing for a circular future where materials are designed, produced, used and disposed of in radical new ways. Circular Transitions will be the first global event to bring together academic and industry research concerned with designing fashion textiles for the circular economy. The themes will explore the design of new materials for fashion with approaches ranging from emerging technology and social innovation to systems design and tools.